

ISP SYSTEM USING NON-GEOSYNCHRONOUS ORBIT SATELLITES

ABSTRACT OF THE DISCLOSURE

A satellite communication system includes a plurality of satellites, such as low earth orbit satellites, and a plurality of gateways. The satellite communication system is bidirectionally coupled to a terrestrial communication system through at least the plurality of gateways. The satellite communication system and the terrestrial communications system together form a data communication network having a plurality of nodes including source nodes, destination nodes and intermediate nodes. Multiple copies of a packet can coexist within the data communication network, and the packet and its one or more copies are routed, using at least in part satellite-resident routers and gateway-resident routers, over a plurality of different paths between a particular source node and a particular destination node. At least one duplicate copy of a given packet is simply not used during the execution of a packet reordering procedure in the destination node, or at an intermediate node. Certain of the paths are carried over satellite-to-satellite cross-links, while certain other ones of the paths are carried over satellite-to-gateway uplinks and downlinks, and at least one path exists between a user terminal and at least one satellite. In a preferred embodiment the packets are TCP/IP (or equivalent protocol) packets containing information for enabling the selective destruction of a duplicate packet to occur.

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